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**SCOPE COTTON**OXC-1054-67  
Copy 1 of 10

2 August 67

MEMORANDUM FOR : Deputy for Materiel  
Deputy for Operations  
OXCART Operations

SUBJECT : Trip to West Coast, 24-28 July 1967

1. The undersigned visited the following installations:

A. Hycon, Inc. - 25 & 26 July 1967.

B. [REDACTED]

C. [REDACTED]

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2. The following paragraphs are of interest or require action by the various staff organizations within OSA.

3. Hycon - The undersigned had discussions with the following Hycon personnel: [REDACTED]

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A. Hycon indicated they were willing to put their reputation on the line and commit the Type IV for operational use. Sufficient manpower, spares, FAKs and test equipment, etc. are ready and available to support an overseas operation. The writer stated he expected more conclusive evidence as to performance before he would give his OK to commit Type IV.

B. There are two (2) complete Type IV hatches. When Perkin-Elmer completes grinding and polishing two (2) outer oblique panes, the third hatch will be available. Perkin-Elmer estimates it will take eight to nine weeks to get both panes ready. Therefore, at the latest, we should have the third hatch ready for use by the last week in September.

C. SN-2, now being up-dated at Hycon, will be ready for shipment to [REDACTED] approximately 21 August and will be ready for validation flights NLT 28 August. Two (2) successful validation missions will be required. In the event Type IV (SN-1 and SN-3) is committed operationally prior to this date, various problems will arise which we should recognize.

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1. No hatch will be available (see par. 3B) until the third or fourth week of September 1967.

2. As all field technical representatives would be at Kadena supporting Type IV (SN-1 and 3), plans have been made to utilize Hycon engineering personnel from their M & O facility to run SN-2 validation missions.

3. All top line test consoles, etc. would be at Kadena supporting the operational configuration. Older model test sets would be available to support SN-2 validation flights.

D. Type IV personnel [ ] and plant have expressed concern as to whether there is sufficient film in the inventory to support tests and/or operational missions up to 31 November 1967. Each Type IV configuration utilizes two (2) rolls of film. Therefore, for an operational mission when a primary and secondary configuration are both required, four (4) rolls of film will be utilized.

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E. Type IV at the present time does not have a shutter speed of 1/750. From various tests it has been determined an intermediate exposure time between 1/1000 and 1/500 would be advantageous; therefore, a card is being fabricated to give 1/750 sec.

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A. Type I

1. Only one Type I configuration (Unit H) is [ ] and it is operationally ready.

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2. They are "geared up" and ready to recollimate and test the Type I-E configuration programmed to come back from Kadena. The Type I-H forward bench will also be changed and then revalidated.

3. There is some concern as to whether there are sufficient number of Type I take-up spools and spiders available at Kadena. There should be 35 of these spools in our inventory along with 24 shipping

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25X1 containers. Action is required by D/M to inquiry EK if they have any of these spools and if so to ship them back to Kadena. Some of these spools may also be at

25X1 4. Question also came up as to whether we had sufficient film to support operations to 30 Nov. 67. The undersigned indicated he wrote a memo dated 21 July 1967 (OXC-1013-67) bringing this to the attention of D/M.

C. Type IV

1. As mentioned in par. 3 of this memo, the Type IV organization is ready and eager to get overseas with their configurations. As a result of the first alert they have put their personal affairs in order (gave up their apartments, stored cars, etc.) and have been standing by ready to go.

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2. The most pressing problem is getting a sufficient number of good flights on the two (2) configurations so a fair judgment can be made as to their readiness for operational utilization. Some examples may illustrate the problems involved.

a. 67T248 (4-0055-1) flown 20 June 1967, 30% to 50% clouds. The pilot also commented he had high frequency vibration on all camera runs.

b. 67T264 (4-0056-1) the next flight which was flown 7 July 1967. Total package time was 48 minutes; however, only about one half this time was over areas which produced imagery. Then, of this latter time for a total of 12 minutes, the aircraft was in a roll exceeding 30° and in an excessive pitch altitude. The mission had 50% clouds.

c. 67T274 (4-0057-1) 18 July 1967 - Unit turned on while in an "unstable" turn due to autopilot problems. INS and autopilot problems on this mission.

d. 67T277 (4-0058-1) 19 July - With exception of INS problem no other deficiencies noted.

e. 67T284 (4-0059-1) 27 July - This mission was cut short after 20 minutes due to problems with right engine and SAS malfunction. When the lower hatch was removed, the undersigned noted a considerable quantity of foreign particles were distributed over the inside of the windows and hatch. These particles were dust, pieces of epoxy and flat black paint flakes. (A photograph was taken). Type IV personnel indicated this condition is observed after all their missions, but it has not been as noticeable previously. This condition is caused as follows: The air conditioned air entering the Q-bay comes through the E-bay and also consists of overflow from the cockpit. It exits through the relief valve in the rear bulkhead. When the Q-bay hatches are sealed, the air conditioning system is turned on, and consequently, any dirt, dust or other foreign particles in the cockpit and E-bay are

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blown into the Q-bay. The solution is relatively simple; both the cockpit and the E-bay should be thoroughly vacuumed before each flight. This is SOP for the Q-bay. The dust and other foreign particles when deposited on the windows do not markedly degrade the imagery, but it does collect on the very narrow shutter slit and causes varying density banding and streaks in the format with consequent loss of contrast and resolution. Minute quantities of these foreign particles might also very well contribute or cause some of the unexplained failures or intermittent operation of electronic components which require good seating contacts or separations to actuate a sequence of events in a configuration. (Note: Although the air conditioning ducting is different for the Type I, the probability that dust seeps in is high, and consequently, it may be the source of the many notations of "dirt in the slit" and density streaks or banding.) To repeat, the solution to this problem is to direct the appropriate personnel to thoroughly and conscientiously clean and vacuum the cockpit and the E-bay prior to each mission.

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*MADE*

3. The Type IV personnel (field and plant) are firmly convinced the major portion of the double imagery problem has been solved. They attributed the cause to be the windows. Specifically, one of the oblique windows had a wrong wedge and the other windows had excessive strain and distortion due to improper clamping of windows to hatch assembly. Hycon in conjunction with LAC reworked two hatches and are using these for their flights. Hycon personnel who have viewed the latest flight (67T284) report double imagery is minimal.

4. The undersigned does not wish to imply the Type IV performance or lack thereof is all attributable to the above items; however, to firmly establish what these shortcomings are and their causes, and then, of course, the fix or remedy, we must make every effort to give Type IV flights which are productive, i.e. good weather, flight lines which give sufficient imagery to evaluate camera performance, a good stable reconnaissance platform (aircraft and pilot). If we could

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meet the above requirements just once for each configuration, we could quickly determine the exact status of Type IV and establish a firm date for its possible deployment.

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5. To further accelerate the evaluation process of the Type IV, it is recommended the validation missions be processed at [ ] and the evaluation of the material be performed by the contractor (Hycon) at his home plant. After evaluation the ON would be sent to NPIC for their evaluation. Proj. Headquarters would accept the Hycon evaluation report. This recommendation has the following advantages:

a. Saves time - Many weeks are wasted getting the exposed film back to EK to be processed and then getting NPIC to evaluate it and write a report. Note: Operational missions of various types have top priority.

b. Hycon can make adjustments, changes, etc. prior to next mission if it is necessary.

6. The undersigned has no reservations as to the honesty or validity of the contractors evaluation report. He will of course know his evaluation will be compared with that submitted by NPIC at a later date and he could also expect a spot check of the validation mission by OSA while it is being evaluated at Hycon.



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Sensor Systems Division  
Special Activities

Attachment - 1  
As noted

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Approved For Release 2003/12/19 : CIA-RDP71B00399R000600060021-5

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